DOCUMENT RESUME

ED 139 565 RC 009 899

AUTHOR McLeod, Ricki
TITLE A Planning Guide for Short Backpacking and Ski Touring Courses with Colorado Outward Bound School.
INSTITUTION Colorado Outward Bound School, Denver.
PUB DATE Sep 75
NOTE 66p.
AVAILABLE FROM Colorado Outward Bound School, 945 Pennsylvania Street, Denver, Colorado 80203 ($2.00)

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS Accident Prevention; Bibliographies; Charts; Clothing; Creative Activities; Ecology; Environmental Education; First Aid; Food; Geology; Group Experience; *Guides; History; *Humanistic Education; Instructional Trips; *Integrated Activities; Interdisciplinary Approach; Map Skills; Models; Objectives; *Outdoor Education; Program Evaluation; *Program Planning; Student Participation; Student Projects; Teacher Responsibility; Teacher Role; Values
IDENTIFIERS *Backpacking; Colorado Outward Bound School; Outward Bound; *Skiing

ABSTRACT

Outward Bound (OB) backpacking and Nordic ski programs aim to integrate humanistic goals (i.e., personal awareness and understanding and compassion for others) with the school's curriculum. Program goals fall in three areas--personal, group, and academic. In designing a successful course which will achieve the goals, there are several phases, all equally important: planning, student involvement, classroom preparation, connecting experience, and follow-up or evaluation. Following these phases, this guide presents ideas to aid teachers in designing and carrying out their own OB programs. Covered are: teachers' role and responsibilities; fund raising; food planning; students' projects; suggested activities in geology, ecology, weather, map and compass, human history, and creative writing and art; activities during the course--introduction games, group journals, environmental awareness exercises, group experiences, values clarification, poetry, stories, readings, and personal interviews; and course evaluation. Appendices include: an OB short school program proposal form, time line chart, backpacking and short ski program models, sample menus, insulation and chill factor charts, common animal tracks, first aid kit and clothing lists, a general bibliography of ski touring literature, rules for preventing hypothermia and for avoiding and surviving snow avalanches, and a ski touring program evaluation form. (NQ)

Documents acquired by ERIC include many informal unpublished materials not available from other sources. ERIC makes every effort to obtain the best copy available. Nevertheless, items of marginal reproducibility are often encountered and this affects the quality of the microfiche and hardcopy reproductions ERIC makes available via the ERIC Document Reproduction Service (EDRS). EDRS is not responsible for the quality of the original document. Reproductions supplied by EDRS are the best that can be made from the original.

$2.00

ED139565

A PLANNING GUIDE
for
SHORT BACKPACKING
and
SKI TOURING COURSES
with
COLORADO OUTWARD BOUND SCHOOL

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

RC009899

September 1975

Ricki McLeod

Maria Snyder for CO
Outward Bound

TABLE OF CONTENTS

Introduction 1
Goals
Personal 2
Group 2
Academic - Content 3
Planning 4
Teachers' Role and Responsibilities 6
Student Involvement 7
Fund Raising 7
Food Planning 8
Student Projects 8
Classroom Preparation 9
River Proposal 10
West High School Proposal 11
Geology 13
Ecology 13
Weather 14
Map and Compass 14
Human History 14
Creative Writing and Art 15
Connecting Experience 16
Introduction Games 16
Group Journal 17
Environmental Awareness Exercises 17
Group Experiences 18
Values Clarification 18
Poetry, Stories, Readings 19
Personal Interviews 19
Evaluation or Follow-Up 19

Appendices
OUTWARD BOUND Short School Program Proposal Form . . . A
Denver Public School Proposal for Program Addition or Modification . . . . . B
Time Line C
Parent Permission Form . . . . . D
Project Center Planning Sheet . . . . . E
Program Models . . . . . F
Backpacking Menus . . . . . G
Ski Touring Menus . . . . . H
Insulation and Chill Factor Chart I
Animal Tracks . . . . . J
Backpacking Equipment . . . . . K
Ski Touring Equipment L
First Aid Kit List . . . . . M
Clothing List - Backpacking . . . . . N
Clothing List - Ski Touring . . . . . O
Forest Service Pamphlets . . . . . P
Rescue Litters from Skis . . . . . Q
Coat of Arms . . . . . R
Evaluation . . . . . S
Publications Available from Colorado OUTWARD BOUND School . . . . . T

This planning guide is meant to facilitate teachers in their preparation for short backpacking and ski touring courses with the Colorado OUTWARD BOUND School, and ultimately to aid them in designing and carrying out their own programs. Through the Project Center OUTWARD BOUND's involvement with schools is developmental in that it is one of our goals to have schools setting up their own programs after training from OB. This guide is not meant to contain all ideas, but rather to serve as a spring-board for teachers to create their own means of reaching objectives. Ideas here were compiled from suggestions given by teachers who conducted ski touring courses during 1974 - 1975, participating OB instructors, and the project director, George McLeod.

GOALS

One purpose of the OB backpacking and Nordic ski programs is to integrate humanistic goals, such as personal awareness and understanding and compassion for others, with the schools' curriculum, or to provide an interdisciplinary approach to learning. The outdoor or natural environment is a great medium for this.

The following list of goals in three areas, personal, group, and academic, taken from A Mountain Classroom, may be helpful in showing the possibilities of such a course.[1]

A. Personal Goals

1. To enrich the student's understanding about his/her physical and natural environment, so that more intelligent decisions about how to use that environment can be made.
2. To improve the student's self-image and self-confidence through participation in action oriented tasks.
3. To have each student gain a sense of accomplishment and satisfaction through the physical effort of hiking or skiing and completing the trip.
4. To have each student gain a better realization of his/her physical potential and the need for maintaining sound physical condition.
5. To have each student gain a greater desire and ability to accept responsibility and the leadership role.

B. Group Goals

1. To develop a cooperative model rather than a competitive one for the resolution of problems.
2. To foster a greater sense of trust between teacher and student and the student and his/her peers.
3. To have each student become aware of his/her responsibilities to the group of which he/she is a member.
4. To have each student become aware of his/her own values and attitudes and how these relate to the accomplishment of the group's tasks.
5. To have each student learn the roles he/she can play in a group and the nature of the group's dynamics.

---

[1] Appalachian Mountain Club, A Mountain Classroom (Center Conway, New Hampshire: Walker's Pond Press, 1973). pp. 2-3.

6. To have each student gain a greater respect for the worth of his/her companions.

C. Academic--Content Goals

Information

1. To gain a greater understanding of geological time.
2. To observe the effects of glaciation and weathering.
3. To observe and describe common flora and fauna of the region.
4. To identify and describe many adaptations of plants and animals living in harsh mountain environments.
5. To observe the effect of altitude on climate.
6. To study and observe weather changes and patterns in the mountains.
7. To study the inter-relationships of the living organisms and their dependence on the non-living environment.
8. To trace the history of man's effects in changing and preserving the region.
9. To study the patterns and development of towns and their locations in respect to rivers, mountains, and natural resources.
10. To learn about governmental land control.
11. To have students learn about photography by making a film documentary of their experiences.
12. To have each student learn about sketching in different media--by drawing with chalk, charcoal or watercolor the flora, fauna and geological formations of the region.
13. To learn about the human history of the region by reading and writing short stories, legends and poetry of the mountains.
14. To learn about man's attitudes towards the environment and how his behavior effects the environment as his attitudes change.

Process

1. To provide students with a methodology that utilizes experimentation and exploration as a means to discover answers.
2. To provide students with an opportunity to raise questions rather than be given answers.
3. To provide students with an understanding that learning involves physical and emotional behavior, as well as cognitive behavior.

In designing a successful course which will achieve these goals, there are several phases, all equally important. OB Project Director, Jim Kielsmeier states these phases as 1) planning 2) student involvement 3) classroom preparation 4) connecting experience 5) follow up.[2] This guide will follow these phases.

A. PLANNING

The success of a course is often determined here. Perhaps the first step is to determine the particular goals for the course. Too many times, educators become involved in planning activities without first determining the "why's" and objectives. If these are not firmly in mind during the entire course, from planning to follow-up, the course tends to become purely recreational. Included in the appendix are two forms which may help in goal setting. The first is the OB Short School Programs Proposal Form (appendix A) which must be filled out by all schools participating in these programs and is due two months prior to the course. The second (appendix B) is a proposal form devised by Dr. Roscoe Davidson of Denver Public Schools, which all DPS teachers must submit for excursions. The form is quite comprehensive and raises questions which need to be answered at the very onset of a program. Another aid might be the DPS Proposed Policy 2902E on Educational Excursions, drawn up by Robert Colwell, Director of Alternative Education. This proposal was not included here because of its length, but it has a very valuable rationale, a planning procedure, and guidelines.

With goals firmly in mind here are some further considerations.

---

[2] Kielsmeier, James, Experience as an Interdisciplinary Focus in Alternative Programs (Denver, Colorado: Colorado OUTWARD BOUND School, 1975). p. 4-5.

1. Determine that there is sufficient support and backing from:

   a. teachers
   b. administration
   c. parents
   d. students

2. Announce the course to all teachers through bulletins and the public address system to stir enthusiasm.

3. Keep public relations always in mind. Keep other teachers, parents, and the administration completely informed of all developments and planning.

4. Have plenty of time to do a thorough planning job.

5. Have financial resources available.

6. Know that all those involved have the energy to see the program through. Short courses demand a lot of energy!

Practical planning can now begin, following the attached time line (appendix C). A copy of this time line will be mailed with the original packet and is to be filled out and followed by both schools and OUTWARD BOUND. Perhaps helpful here is a sample parent permission form drawn up by the Appalachian Mountain Club (appendix D).[3] To aid in planning of courses not done with OB is a copy of the COBS Project Center Program Planning Sheet (appendix E). It is necssary to do a thorough reconnaissance of an area before it is used to know all emergency procedures and contacts, obtain forest service permits, and of course, plan activities. An interesting way of reconnoitering is advanced by Jim Kielsmeier in a paper available from OB entitled Team Reconnaissance.[4]

An integral part of the planning is meeting with the OB staff

---

[3] Appalachian Mountain Club, op. cit., p.b.

[4] Kielsmeier, James, Team Reconnaissance: A Process for Involving Teachers in the Preplanning of Experiential Education Projects (Denver, Colorado: Colorado OUTWARD BOUND School, 1975).

prior to the course to discuss goals and means of achieving them.

It is necessary to delineate carefully the responsibilities of both the teachers and the OB staff. The following may aid in this discussion:

TEACHER'S ROLE AND RESPONSIBILITIES

1. It is the primary role of the teacher to connect the pre-course study and the post-course follow-up to the experience.

2. Teachers need to give on-course academic input or they tend to become students. To facilitate this, two weeks prior to the course teachers are asked to:

   a. submit a detailed list of pre-course activities, aiding the OB staff in understanding the background.

   b. submit a time schedule for the course. This should be built around the outline provided by OB (appendix F). OB asks that teachers set aside time blocks during the day for studies or activities that will meet their goals, and where the teacher will become the primary instructor. These could be taught by the OB staff, but they should be carefully planned ahead of time.

3. The evening program, as well, is generally the responsibility of the teachers. These activities should be discussed with the OB staff and often can be led by them, but primarily this is up to the teachers.

4. It is the teacher's responsibility to set up and arrange the planning meeting with OUTWARD BOUND. This meeting should be mandatory for all participating teachers and the OB Project Director.

5. Since it is OUTWARD BOUND's goal to help teachers develop their own programs, teachers can and should be given the opportunity to instruct any outdoor skills in which they are competent. This includes map and compass, first aid, skiing skills, etc. The OB staff and teachers should arrange this at the preplanning meeting.

6. We would like teachers to aid in the following areas of supervision:

   a. Keeping the group together on the trail.
   b. Cooking and kitchen details.
   c. Clean up
   d. Equipment issue and return. Perhaps each teacher will be put in charge of various items of equipment.
   e. Retiring and arising time of students
   f. Alcohol, drugs, and cigarettes. We ask that students refrain from drinking or using drugs while on the course. Smoking is not permitted in buildings. We assume that teachers will abide by these guidelines as well.

The OB Staff will be responsible for all basic outdoor instruction and safety precautions, will aid in supervision, and will be resource persons with many ideas for attaining both academic, personal, and group growth. These responsibilities, the proposal, the course plan, and the teachers' expectations should be discussed thoroughly at the planning meeting.

B. STUDENT INVOLVEMENT

Perhaps this should be listed before planning because the best courses are those in which students have been involved on all levels of planning. The activities should suit the needs of the students; therefore it is good to have students try to verbalize these needs and help design and choose activities to meet them. Parent and community involvement will also widen the basis of support. To get maximum student involvement in all phases, it is essential to break the larger group into smaller patrols or primary groups. This should be done early to allow as much team building as possible to take place during the planning.

Specific areas of student involvement:

1. Students might be chosen on the basis of a proposal they write about why they want to come, what they intend to do with the experience, etc. Parents become involved if they are asked to sign the proposals.

2. Fund Raising - An experience is more meaningful to a student if he has some financial investment in it, rather than his parents paying his way or his receiving a full scholarship. Try to do meaningful activities. Some ideas:

A. Marathon, trashathon, bike-athon - The student is paid by

community people so much for every mile he runs/bikes or pound (or certain number) of trash, old newspapers, glass bottles, or aluminum cans he gathers. Additional money can be earned by turning in the cans or bottles. This is also good publicity for community papers, t.v. etc.

B. Buy a tent, sleeping bag, pair of skis, pair of hiking boots, etc. from a mountaineering store and sell raffle tickets on it.

3. Food planning - Menus should be planned and food cooked by students. On the backpacking courses students will be in groups of nine with one OB instructor and one teacher. Food should be planned around this number. This group can be further divided into three smaller groups, each with a stove and set of cooking pots. OUTWARD BOUND cooking is usually done in this small "tent group." This is a way of assuring that cooking and cleaning tasks are equally divided and a great deal of group team building happens here. It is often fun to plan at least one meal where the whole group or patrol of 11 eats together.

On the ski touring courses, a group or patrol will cook a meal for all the others; it is therefore best for this patrol to plan the menu of the meals they will be cooking. Sample menus are appendices G and H. Food complaints in the past have generally centered around a lack of drinks, hot and cold, and trail munchies. Food planning can be an excellent nutrition lesson.

4. Student projects - Courses seem to mean more is there is a tangible product at the end. Students, of course, should be able to pick their own project and it should be an integral part of their classroom work. Another plan is to let the group choose "task" patrols which

would study various subjects. There are many ideas for projects and some can perhaps be sparked from the later discussion on classroom preparation. One good idea is to have students research first aid, local history, etc. and then make a short presentation in the classroom prior to the course, or on the course as either an evening activity or a time block during the day.

5. **Physical fitness plan** - It is wise to encourage some sort of pre-course fitness so that participants can enjoy the course rather than be wholly concerned with their physical capabilities. Perhaps physical education teachers could help here.

C. CLASSROOM PREPARATION

The more students learn in the classroom before the course, the more they will benefit from the experience. There are generally two methods used for this phase of the course. The ideal is to choose students who have many classes together. All of these students' teachers meet and plan units of study, based on the experience, which are then taught concurrently. This interdisciplinary approach is very valuable. If this is impossible, sessions are held in the evenings, after school, or during lunch hour for about two weeks before the course. Some of the meeting time goes to logistics, but the majority should be devoted to the teaching of related subjects by teachers, students, community resource people, or the OUTWARD BOUND staff.

Ideas for integrating academic subjects into a field experience are numerous. Compiled here are sample studies from three sources; the OUTWARD BOUND River Rafting Proposal, the West High School - OUTWARD BOUND Winter 1972 Program, and suggested activities from A Mountain Classroom.

from: A Proposal to Secondary Schools for Involvement in OUTWARD BOUND River Courses

Astronomy

Concepts

1. Star and planetary motion
2. Earth and moon motion
3. Galactic structure
4. Star size and evolution
5. Sun motion
6. Sky geography
7. Constellations

Questions to explore

1. What are some of the better known constellations? What is their significance?
2. How can the constellations prove the earth turns? At what speed? As timed by the movements of the Big Dipper?
3. What can be determined about the action of the moon by observing it for three consecutive evenings?

Physics

Concepts

1. Thermodynamics
2. Reflectivity and conductivity
3. Mechanics

Questions to explore

1. Insulating properties of clothing and equipment.
2. Heat producing properties of various wood fuels.
3. Thermal conductivity of pots, pans and cups.
4. Atmospheric conditions and heat loss
5. Ground cover and heat loss.
6. Hypothermia

Health

Concepts

1. Bodily needs
2. Sanitation
3. Cleanliness
4. Disease
5. First aid training

From: West High School Proposal, OUTWARD BOUND, 1972

History
I. Indian influence
II. Spanish influence
III. Anglo Influence

Sample questions and activities
1. Visit the local cemetary. Determine the following:
   A. Type of person attracted to the area (male, female, nationality, young, old)
   B. Type of population (stable or transient)
   C. Years of disease
   D. Average age of people
   E. Way people died (violent or natural)
2. Explore old mining towns

Meteorology
I. Cloud formations
   A. Types of clouds (cirrus, cumulus, cumulonimbus, stratus)
   B. Storm centers in the area
II. Weather forecasting
   A. Wind
   B. Temperature
   C. Climate

Questions
1. How are clouds formed?
2. Why do they build up approximately the same time daily?
3. What causes wind?
4. Why do we have seasons? Why do they vary from year to year?
5. How are energy and climate related?
6. What is the chillfactor?
7. How do mountains affect rainfall? What evidence do you see to support your answer?

Ecology
I. Montane
   A. Compare lower montane to upper montane.
   B. Edible plant study
      1. lichen
      2. mushrooms
II. Sub Alpine (up to timberline)
   A. Plant and animal life
   B. Why are these different?
III. Alpine (tundra)
   A. Delicate, yet sturdy
   B. No trees - why?

Questions
1. What affect does glaciation have on plants?
2. Compare the plants on a north slope with a south slope.
3. How much regrowth has occurred since the mining days?
4. What can you tell about the climate by looking at the plants and animals?
5. Why can't the tundra utilize as much rainfall as the montane biome?

West High School cont'd

Math

A. Map and compass orienteering
B. Time and distance estimation
C. Measurement
    1. Linear in metric and mile
    2. Centigrade and Fahrenheit
    3. Liter and quart

Music

A. Natural music
    1. Wind
    2. Water
B. Campfire and hiking songs

Psychology

A. Interaction of people to people
B. Interaction or people to environment
C. Interaction of mental and physical self
D. Affects of environment directly on people
E. Community Living
    1. Need for rules
    2. Group concerns - how do you deal with them?

GEOLOGY - SUGGESTED ACTIVITIES

1. Use roofing tar to illustrate glacial movement. Pour tar slowly on top of itself. The movement outwards is like that of the glacier. See what happens when you put an obstacle in the course of the moving tar.
2. Identify and collect rocks and minerals.
3. Use a hand lens to observe different rock and mineral surfaces.
4. Observe folding of rocks--discuss the origin or cause for these patterns.
5. Make observations to determine what looks like a glacial valley and what looks like a river valley.
6. Have students identify stream-eroded and glacially-eroded rocks.
7. Study the movement of boulders and rocks in streams to determine the rate of movement and the erosive force of streams.

ECOLOGY - SUGGESTED ACTIVITIES

1. Look for animal evidences--prints (good after light snow or mud) scat, remains of food, holes, feathers.
2. Look for wind-pruning of spruces to illustrate dessication and winter snow line.
3. During an ascent, note plant formation. Discuss different adaptations due to changes in altitude.
4. To illustrate adaptations, have students study the plants and animals within a five foot square plot of land. This may be done in one or all zones. (Note differences of transitions.)
5. Measure tree diameter and tree growth from one zone to another.
6. In the alpine zone, study plant adaptation to the weather (identify three different leaf characteristics.)
7. Study protected and unprotected areas. To note why a microclimate is where it is, have students stand on top of rocks, beside rocks, and crouched down behind rocks. Measure air, surface and soil temperatures, humidity, wind intensity, and moisture.
8. Study the succession of a bog (from pond to forest).
9. Have students identify the development of soil in the alpine zone. (Lichens to mosses, to sedges, to flowers, etc.)
10. In spring and early summer have students study the flowering of the same kinds of plants at high altitudes compared with low altitudes.
11. Compare the number and change of species of birds with changes in altitude. Make and test hypotheses as to why there are differences.
12. Take soil temperatures in exposed and shaded areas. Calculate the extremes of temperatures that might be encountered by organisms in each of the areas. What happens to the organism at the extremes?
13. Have students identify the flowers of different zones through their sketches and drawings of them.
14. Study the organic life in pools and streams (fast or slowmoving) versus lakes and bogs. State and test hypotheses from the similarities and differences.
15. Make a natural cross-section of a bog.
16. Study nature's spatial patterns and relate them to man's.
17. Study animals' and insects' language (communication) and relate it to man's non-verbal language (communication).

WEATHER - SUGGESTED ACTIVITIES

1. Develop skills in the use of an anemometer, thermometer, barometer and altimeter, by having students measure weather changes at different altitudes and at different times of day.
2. Make thermometers, anemometers and barometers and then use them in the field.
3. Study weather patterns over a long period of time to understand seasonal changes.
4. Study the weather statistics, precipitation, wind, temperature in the valleys and on the summits to make conclusions about the mountains' effects on intensifying weather.
5. Study the relationship between altitude and barometric pressure.
6. Have students boil water at different elevations (sea level, valley floors, summits) to determine the relationship between altitude, barometric pressure and boiling point of water.
7. Study air movements (on calm evenings). Downhill drafts show up in ravines and over the paths of streams.
8. Through observation in the valleys and on the summits have students draw conclusions as to the effect of the mountain range on daily weather patterns.
9. Make a study of wind direction and intensities to determine prevailing winds and their effects on plant growth.
10. Study (even draw) different cloud formations and determine how these different patterns are related to weather changes.
11. Consider the effects of weather changes on backcountry use. Heavy rain, high water at crossings, wind and temperature, chill factor, mechanical wind effect, possibility of below freezing temperatures in summer.

MAP AND COMPASS - SUGGESTED ACTIVITIES

1. Make a relief map using a contour map.
2. Make crude maps in the field.
3. Make a "contour rock" by dipping the rock into water at successive one-inch intervals. Mark the wet lines with brown magic marker. As the rock dries, the brown lines will illustrate what contour lines on a map represent.
4. Using the trail distances and the elevation changes, have your students compute the average gradient of the trail.
5. Study geometric shapes by making contour maps.
6. Plot altitude and location by triangulation.
7. From the study of maps and map making make some conclusions about nature's spatial arrangements and man's spatial arrangements.
8. Learn the sport of "orienteering" and set up an orienteering course in your schoolyard or local park.

HUMAN HISTORY - SUGGESTED ACTIVITES

1. Have your students engage in historical research of the area by using primary sources.
2. Explore an area for signs of past, present and future human use. (logging or mining roads, camps)
3. Relate names of places to names in history.

4. Make a time-line of the significant historical events.
5. Make, wear and use clothing, tools, and utensils which are representative of the early settlers.
6. Go antiquing.
7. Study some of the local grave sites to become familiar with the names of people who lived in the mountain area. Make grave rubbings.
8. Compare and contrast the value systems, family patterns, and daily life styles of the Indian culture and that of the early settlers of the area.
9. Develop interview forms to be used with people you meet in the mountains. The purpose may be to determine the present and future uses of the mountains. (A tape recorder may be used).
10. Identify problems of pollution and possible solutions.
11. Debate the issues of wilderness preservation versus economic development of the remaining forest lands.
12. Study the territorial patterns of animals and their relationship to man's territorial patterns.
13. Study an area in an ecological zone and have students determine its value to man.

CREATIVE WRITING AND ART
SUGGESTED ACTIVITIES

1. Read the writings of those who loved and wrote about the mountains.
2. Read and recreate myths and legends about the mountains.
3. Have students write short stories and/or poetry during the trip.
4. Have all trip participants keep a personal journal.
5. Have students sketch and draw in all possible media, such as charcoal.
6. Collect dead plant specimens, leaves, flowers, roots, twigs to make mobiles and collages.
7. Have students do photographic essays; which involves picture taking, developing and arrangement.
8. Have student make an 8mm film of the trip.
9. Compare and contrast the changing conception of nature as exemplified in paintings and drawings of the 18th, 19th and 20th century.
10. Study nature's colors in different seasons and use those colors as themes for collages, paintings and drawings.
11. Make dyesand paints from plants and soil.
12. Make a collage or display from trash collected along the trails.

"The Mountains are fountains of men as well as rivers, of glaciers, of fertile soil. The great poets, philosophers, prophets, able men whose thoughts and deeds have moved the world, have come down from the mountains--mountain dwellers who have grown strong with the forest trees in Nature's work-shops."

John Muir

Also included in the appendix is a clothing insulation and wind chill chart (appendix I), animal track drawings (appendix J), and lists of equipment furnished by OUTWARD BOUND for backpacking (appendix K) and ski touring (appendix L).

Additional ideas:

1. Movies "By Nature's Rules"
   "Scott's Last Journey"
   "Bighorn"
   "Think Like a Mountain"
   "Winter Without Words" ski touring

2. Go over the OUTWARD BOUND first aid list (appendix M) and clothing list (appendix N, backpacking; appendix O, ski touring) discussing why each item is necessary.

3. Ski touring - Order three pamphlets published by the Forest Service on avalanche, hypothermis, and winter travel in the mountains. (appendix P)

4. Attend summer Forest Service environmental workshops. Contact your local Forest Service office.

5. For specific winter mountaineering skills an OUTWARD BOUND Winter Syllabus by Bur. Redmayne is available.

D. CONNECTING EXPERIENCE

It is important during the experience itself to make certain that activities are done to accomplish the specified goals. The experience connects the learning at the school with the follow-wup after, and the teacher is the link.

In addition to the previous lists of activities, there follows more ideas to be used while on the course, during the day or as an evening activity.

1. Introduction games - usually necessary even though students are from the same school.

   a. Say your name three times using your voice to describe how you feel.

   b. Sit back to back with a person and introduce yourself by telling things about yourself (May need to structure this for younger students). Then turn and face another partner and introduce yourself. This dramatizes how much we need responses from others.

c. Various remembering names games.

d. Values introductions - Make name tags of things you like to do, a person you admire, etc.

2. Group journal - a very exciting idea. Each patrol keeps a journal. One or two students write the day's activities, thoughts, feelings, etc. This is read just before going to bed. If typed and distributed following the course, it often becomes a great evaluation and a prized record of the experience.

3. Environmental awareness exercises
It is necessary to do more than lead the students through the woods in order to get them to appreciate the environment and their relationship to it. Here are some suggestions. Create more!

a. Solo - Even a one hour solo is a high point in the course. If students are alone and quiet they use their senses more. We strongly recommend each school scheduling a mini-solo, and asking students to write something - to respond to their environment.

b. Silence - In backpacking awake to silence. The first person awake wakes the others - with no sound - and the group does some activity before breakfast with no talking, a short hike, etc. In ski touring the use of a lodge detracts from this, but schedule in an hour of silent skiing.

c. Find your tree - Blindfold a person and have him select a tree and feel, smell, taste it until he knows what it is like. He is led away and then tries to find his tree.

d. Choose two different kinds of trees, a fir and a pine, for example, and have students study them until they can tell what characteristics make the distinction.

e. Night skiing or hiking provides a whole new look at the world.

f. A star or moon watch. Two or three students keep watch of the sky for a couple of hours, noting changes. Then they awaken another "watch." The winter sky has the best constellations and this would be an ambitious project for an overnight ski touring group!

g. At least one night try not to have a camp fire. A fire gives you tunnel vision - you see and hear only the fire.

4. Group experiences, team building, initiative tests

   a. Make shadows of letters to spell a word, or make shadows of an object and the rest of the group guesses.

   b. Leave the group to find the route on their own.

   c. Appoint a leader for the day who actually leads and makes decisions. Teacher/instructor only steps in if safety is threatened.

   d. Games, such as relay races, fox and geese are good for skiing. Also a race where students can use only one ski shows the value of good equipment.

   e. Building an igloo or snow cave without too much instruction.

   f. Trust exercises

      1. Trust fall into a circle

      2. Group lift

      3. Blind catepillar - Only the leader can see and he leads the others over an obstacle course. This is good to do on skis as well.

   g. Animal ordering - Each person is blindfolded and given the name of an animal. He makes that sound and the group has to line up according to the size of the animal.

   h. Monster race - Five people to a group, but only three legs can touch the ground. The teams race to a finish.

   i. Rescue initiative tests - A person is given specific injuries and the group must treat the patient, make a litter, and carry the injured a certain distance. A page of possible skiing litter is attached (appendix Q) but let students devise their own. One person gets "lost" and the others must organize and find him.

   j. One person is a dock worker directing a ship into the harbor. The others are barriers. The "ship" is backwards and can only follow verbal instructions.

   k. Small groups pantomime objects and appliances and the others guess.

5. Values clarifications
   These are good to do both before, during and after the course. A good book is Values Clarification, Simon, Howe, and Kirschenbaum, Hart Publishing Co., New York. One idea, the coat of

arms, is included (appendix R). Students are to draw the answers, perhaps symbolically. This is not necessarily for sharing, but to direct a student's thinking to where his life is leading. It could also be used in a discussion on Indian petrogylphs, how to say a lot using a few symbols.

Another idea is to have students write self-contracts and values action exercises.

1. What are you going to do after this trip to support the continuation of this kind of program at your school?
2. What are you going to do to support your feelings, old and new, on environmental protection?
3. ....to learn more about the academic aspects of nature.
4. ....to become a better person, group member, skier, camper, etc.

6. Poetry - pyramid poem

emotion	Contentment
color	cream-colored sand
light	warmed gently by the sun.
sound	Still silence
action	A quiet breeze rolls and curls the sand grains
concrete object	Trying to smother a struggling blade of grass.
completing sentence	The canyons are deep and soothing.

7. Stories and readings

   a. Round robin - Each person tells one minute of a story. It is easier if the instructor asks each student to observe an object during the day, which must be included in his portion of the story.

   b. Read stories about the wilderness or the area you are in. Read "To Build A Fire" and then build one.

   c. Read appropriate quotes during any quiet time.

8. Personal interviews - During any experience it is good to try to program in some private conversation with each member of the patrol.

E. EVALUATION OR FOLLOW-UP

At the close of the course an evaluation session will be held while still at the site. Often the ending becomes rushed and participants are eager to return home. Some of the value of the course is lost unless there is some quiet reflective time at the end. Do not plan to leave until 4:00 p.m. At this time the OB evaluation form

will be filled out (a copy for the ski touring program is appendix 3) and the discussion will be determined by teachers and the OB staff. One successful idea here is to share positive points about each member of the patrol in the form of giving a gift. This ends the course on a very caring, personal note.

Another evaluation session should be held a week or so later. OUTWARD BOUND staff would like to be invited to this. It is suggested that each school devise its own written form which measures attainment of specific goals. The following are some ideas that have been used as successful, thought-provoking evaluations.

1. Have students write:
   a. I learned...
   b. Now I wonder...
   c. A self-contract and perhaps share these in a dyad or with the entire group.
   d. A letter to themselves which the teacher will mail in six months.
   e. What one thing stands out in your memory of your OB trip?
   f. How did this experience affect you personally?
      1. How you see yourself?
      2. Your relationship with others?
         a. teachers
         b. fellow students
   g. How have your attitudes towards school changed since your OB trip?
   h. How did the course relate to your course of study at school?

(The last four questions are from a form developed by Balarat, Denver Public Schools, and OUTWARD BOUND).

The participating teachers should also devise some form of written evaluation for themselves. The Lakewood High Altex program asked teachers a. What happened? b. What I learned.

A form developed by West High School in their OUTWARD BOUND experience asked:

a. What academic studies do you feel best fit in the OB setting?

b. What guidelines would you suggest in setting up an OB trip?

c. How do you evaluate the OB program in terms of
   1. student motivation
   2. attainment of program objectives
   3. carryover into the classroom

d. What changes, if any, would you make if you were to repeat the trip?

Perhaps the most important follow-up activity is not to evaluate the connecting experience, but to continue to relate all that has gone before to the classroom and to take off on other subjects where interest was ignited by the experience. The final appendix (T) is a list of publications available from OUTWARD BOUND which may aid in implementing a course.

The program is ambitious, time-consuming, and energy-draining, but if thoughtfully carried out, this course of experiential learning can be one of the most exciting and rewarding times in a student's career.

appendix A

OUTWARD BOUND SHORT SCHOOL PROGRAM PROPOSAL FORM

Name of School/Organization _____

School Address _____ City _____ Zip _____

School Phone _____

Name of Trip Co-Ordinator _____

Home Address _____ City _____ Zip _____

Home Phone _____

Dates of Trip: First Choice _____

Second Choice _____

Third Choice _____

Number of Participants: Teachers _____ Students _____

Could an Outward Bound staff member be of any assistance to your planning and/or pre-trip program? Yes _____ No _____ How?

We need to know specifically how your program will be designed: (Attach a sheet of paper or use the back of this form please)

1. What is the make-up of the group involved and does this group have specific problems we should focus on?

2. What will be your goals and broad educational objectives?

3. What experiences are you interested in bringing to students in order to reach these goals?
   A. Pre-course experiences
   B. In-field experiences (i.e.: evening activities, weather measurement, astronomy, etc.)

4. What academic areas do you want to focus upon?

5. What are some possible student projects you may have in mind?

6. How do you intend to evaluate the program?

Mail forms to:
George & Ricki McLeod
2635 Clermont
Denver, Colorado 80207
Questions: Call 321-1865

appendix B

DENVER PUBLIC SCHOOLS
Division of Education

PROPOSAL FOR PROGRAM ADDITION OR MODIFICATION

Name of Program _____

Person in Charge _____

1. Purpose of Proposed Change. (What is the intended outcome? Does it pertain to entire school, a grade level, a curriculum area, etc?)

2. Statement of Need. (Why is it necessary to make this modification in programs to accomplish this purpose? Could it more easily or more effectively be accomplished in some other way?)

3. Rationale. (What evidence or premise supports the contention that this proposal will accomplish its purpose?)

4. Description of Program in Action. (Who does what? With whom? Under what conditions or circumstances? Using what materials and equipment? During what time?)

5. What Other Features of Your School Program are Changed as a Result of This? (What do participants--staff and pupils--not do under this plan that they otherwise would do?)

6. Proposed Budget. (Itemize anticipated costs and/or anticipated savings, if any, both initially and long-range. Indicate (1) what the school will commit to this project out of currently available resources, funds and/or personnel, and (2) what is needed beyond these resources.)

7. Evaluation. (What criteria will be used to determine degree of effectiveness. At what points in time will evaluation be undertaken?)

8. Duration. (For what time period will the proposed plan be in operation?)

9. Termination. (How will the plan be terminated if for any reason it needs to be? How will negative community, staff, or pupil reaction be avoided? How might the project be continued after termination of external assistance?)

10. Planning. (Who was involved in developing and supporting this proposal?--i.e., building committe, a department, total faculty, parent group, etc.)

11. Related Needs. (Wiring, sapce requirements, building alternations, custodial service, transportation, etc.)

12. Priority. (How important to the school or school district is this project?)

TIME LINE

Date	Completion Check ✓	
		3 months before course 1. Meet with all interested staff, draw up proposal, and send to OUTWARD BOUND.
		2 months before course 1. Begin student selection. 2. Receive medicals and all information from OUTWARD BOUND.
		6 weeks before course 1. Have an information meeting with all participants. 2. Set deadlines for money, medicals, and parent permission forms, if required.
		1 month before course 1. One-third deposit of money must be to OUTWARD BOUND. 2. All medical forms must be to OUTWARD BOUND. 3. Begin classroom preparation if to be done during regularly scheduled classes.
		3 weeks before course 1. Meet with students to assign projects. 2. Divide into primary groups/patrols/task groups. 3. Arrange transportation. 4. Give out clothing list.
		2 weeks before course 1. Send to OUTWARD BOUND a detailed list of pre-course experiences. 2. Send to OUTWARD BOUND a time schedule of the course. 3. All money must be turned in to OUTWARD BOUND. 4. Name and address list must be in to OUTWARD BOUND. 5. Meet with OB staff to go over entire program. 6. Begin classroom preparation meetings if after school, etc.
		1 week before course 1. Have meetings to organize and buy food. 2. Continue classroom study meetings.
		1 week after course 1. Evaluation session.

SUGGESTED PERMISSION SLIP

& MEDICAL RELEASE FORM

We giveour child, _____ (name) permission to participate in the _____ (type) trip on _____ (date).

We expect that the teacher-leaders will take reasonable precautions to ensure safety of our child and we absolve the school system from liability for any accident or illness which might occur on this trip. Should it be necessary to incur additional expenses and/or treatment during the trip, we give the trip leaders permission to use their judgment in such matters and will reimburse them for any expenses.. We, as parents, have decided (with or without medical assistance) that our child is physically able to participate and we acknowledge that any accident insurance we consider necessary will be our responsibility to locate and purchase.

Signed _____

_____

Date _____

Appendix E

PROJECT CENTER PROGRAM PLANNING SHEET

Student_____ COBS STAFF: PARTICIPATING ORG. STAFF:

Program Title_____

Participating Organization:

_____

Location:_____

Dates:_____

Director:_____

EMERGENCY CONTACTS:

(1)_____
Name Address Phone

(2)_____

RATIONALE

Primary Goal:_____

Specific Objectives:_____

_____

_____

Evaluation:_____

Approved by_____
(Joseph J. Nold)

ADMINISTRATION

Location of Program:_____

Activities:_____

_____

(Course Outline Attached)

COBS Insurance _____ (Medicals and student list attached)

Own Insurance _____ (Written details attached)

LOGISTICS

Equipment (See attached)

Vehicles:_____

_____

Food:_____

_____

Facilities:_____

FOREST SERVICE PERMIT

Area_____

Dates_____

_____

No. Students/Staff_____

EMERGENCY PROCEDURE

Emergency contacts (name, address, phone):

a. Field contacts (how can you be reached?) _____

_____

_____

_____

b. Emergency contacts in event of accident (sheriff, forest service, etc.)

_____ _____

_____ _____

Emergency Plan:

a. Alert Procedures_____

_____

b. First Aid Equipment_____

_____

c. Method of field evacuation_____

_____

d. Transportation to medical aid_____

e. Hospitals, doctors, local search and rescue groups_____

_____

_____
(Program Director's Signature

BACKPACKING PROGRAM MODEL
3 Day Course Outline

THURSDAY
- Arrive 5 p.m.
- Issue equipment - Cook dinner
- Communication exercise
- Campcraft
- Discussion of goals, expectations
- Journals

FRIDAY
- Iniatiative tests
- First aid
- Mountain rescue initiative
- Hike to new site
- Evening program to be based on schools needs and talents

SATURDAY
- Map and compass
- Hike and peak climb
- Search initiative test
- Evening evaluation and journal writing

SUNDAY
- Hike back to trail head
- Return equipment
- Course evaluation
- Depart 4 p.m.

SHORT SKI PROGRAM MODEL
3 Day Course Outline.

THURSDAY
- Arrive P.M.
- Dinner
- Issue Equipment
- Discussion: Expectations/Goal Setting
- Camp Procedure

FRIDAY
- Breakfast
- Wax Talk-Wax Skis
- Flat-Track Technique: Kick and Glide, Diagonal Poling, Double Poling
- Downhill Technique: Snow Plow, Snowplow Turns, Step Turn
- Lunch
- Short Tour= Basic First-Air-Winter Survival
- Evening Program to be based on school's individual needs and talents.

SATURDAY
- Breakfast
- Flat-Track and Downhill Review
- Map and Compass
- Short Tour
- Lunch
- Afternoon Tour with snow studies, first-aid

SUNDAY
- Breakfast
- Day Tour to include Avalanche and Emergency Survival on arrival back at base. Return equipment-Clean-
- Pine Tar Lesson
- Clean up camp. Leave 4 P.M.

SAMPLE BACKPACKING MENUS

Food is planned around a patrol or group of 11-- 9 students, 1 OB instructor, and 1 teacher. Costs can be kept to $2.50 per person per day. A good book for reference is Backpack Cookery, by Ruth Dyar Mendenhall.

Menu	Quantity
Breakfasts	
1. Oatmeal (Maypo oatmeal is the most nutritious. Individual pkgs. are expensive. Buy lg. box, measure correct servings, and put in zip lock bag.)	11 servings
French bread, buttered and toasted in pan.	1 med. loaf from lunch
Honey(whipped is best-doesn't run)	1 per person
hot choc/tea/coffee	1 bottle
Tang (put into zip-lock bag)	1 - 2 quarts
Powdered milk	
2. Granola	
3. Scrambled eggs (Eggs broken into a water bottle will last about a day. Powdered eggs are good if the water is boiled and the eggs added gradually while stirring.	
4. Dry cereal, non-crushable like Grapenuts, measured into zip-lock bag	1 lg. box
Lunches - probably repeat each day	
Crackers (French bread might be used first day)	1½ - 2 boxes
Cheese	2 lbs.
Canned meat - tuna, chicken, turkey (Spreadables are good, but expensive)	3 med. cans
Cold drink - Wylers	4 - 6 qts. individual pkgs.
peanut butter (Put into plastic containers)	1 med. jar for whole trip
Honey (whipped)	1 tub
Candy (Nothing that will melt) or gorp--a mixture of peanuts, M & M's, raisins, and other goodies	Some for lunch and some for munchies
Dinners	
Avoid dehydrated meals. They are expensive. Make glops. Begin with pkgs. of dry soup, add cans of meat, and thicken with potatoes, rice, or noodles.	

[5]Mendenhall, Ruth Dyar, Backpack Cookery (Glendale, California: La Siesta Press, 1966).

1. tomato soup rice - instant corned beef	3 pkg. 11 servings 3 lg. cans
2. mushroom soup tuna fish noodles	3 pkg. 3 med. cans 2 lg. pkgs.
3. chicken soup potatoes - powdered milk is needed chicken	3 pkg. 11 servings 3 cans
4. macroni and cheese pkgs. extra cheese tuna fish	3 - 4 pkg. 1 lb. (optional) 3 cans
5. Tuna or hamburger helper (Use soy bean substitue for hamburger)	2 - 3 boxes
6. Any rice or noodle pkg. mix with spices included, i.e. curried rice, add canned shrimp, etc.	3 pkg. 3 lbs. or 3 cans
Desserts	
1. Jello - hot jello is good for an appetizer	2 - 3 pkgs.
2. Jello cheese cake	2 pkgs.
3. Stewed dryfruit	
4. Cookies, non-crushable, i.e. Fig Newtons	
Staples	
salt and pepper toilet paper scrubbies for washing dishes sugar - brown is best matches	

SAMPLE SKI TOURING MENUS

33 people - 3 days Cooked in lodge

menus	Quantity
Breakfast scrambled eggs Sweet rolls Orange juice coffee/tea/hot choc	6 doz. eggs 2 sweet rolls each 1½ gal. orange juice
French toast sausage orange juice coffee/tea/hot choc	4 lg. loaves bread 4 doz. eggs 3 qts. milk 2 link sausage each 1 lb. margarine 2 lg. bottles syrup 1½ gal. orange juice cinnamon
pancakes bacon orange juice coffee/tea/hot choc	3 boxes pancake mix (add water only) 2 lg. bottles syrup 6 lbs. bacon 1½ gal. orange juice
Lunch Lunches eaten on trail so same as back-packing. Can be heavier since out for the day only--add apples, summer sausage, etc. If lunches eaten in the lodge change canned meat to salami and bologna, and crackers to sliced bread.	1½ slices salami each 4 slices bread each
Dinner Turkey - dressing Mashed potatoes Peas Lemonade/tea/coffee/hot choc pie	2 19-lb. turkeys 1 lg. can instant potatoes 3 lg. pkg. frozen peas flour for gravy 3 lg. pkg. dressing 2 lb. margarine--potatoes and dressing 6 frozen pies 1 lg. can lemonade
Barbequed chicken Mashed potatoes Green peas and carrots Green salad Lemonade Ice cream coffee/tea/hot choc	14 chicken 2 bottles barbeque sauce 1 lg. can instant potatoes 5 heads lettuce 1 bag carrots ½ bunch celery 8 tomatoes 1 lg. bottle dressing for salad 3 pkg. peas and carrots 3 sticks margarine for potatoes 1½ gal ice cream 1 lg. can lemonade

Sample ski touring menus cont'd

Spaghetti Green salad (as above) Garlic bread Ice cream and chocolate sauce (as above) Lemonade Coffee/tea/hot choc	3 onions 7 lbs. hamburger 13 lbs. canned tomatoes 6 lbs. canned tomato suace 1½ lbs. canned mushrooms 1½ c. parsley flakes oregano, thyme, salt, bay leaves to taste add 7 c. water 5 lbs. spaghetti 5 loaves French bread garlic salt 1 lb. butter for bread 2 cans chocolate sauce

Staples

salt and pepper
paper towels
napkins
sugar 4 lbs.
Drinks depend on the group. Students usually drink hot chocolate, and teachers tea or coffee

appendix I

EFFECTIVE TEMPERATURE	THICKNESS OF INSULATION (Loft x $\frac{1}{2}$) REQUIRED FOR COMFORT (inches)		
F	Heavy work	light work	sleeping
40	.20	.8	1.5
20	.27	1.0	2.0
0	.35	1.3	2.5
-20	.40	1.6	3.0
-40	.43	1.9	3.5
-60	.52	2.1	4.0

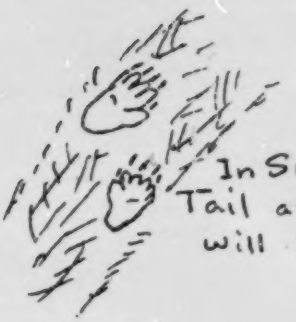
CHILL FACTOR CHART

WIND SPEED MPH	Actual temp. F 40	30	20	10	0	-10	-20	-30
	Effective temperature F							
10	28	16	4	-9	-21	-33	-46	-58
20	18	4	-10	-25	-39	-53	-67	-82
30	13	-2	-18	-33	-48	-63	-79	-94
40	10	-6	-21	-37	-53	-69	-85	-1--

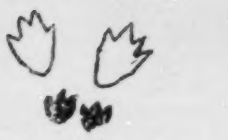
Exposed flesh freezes

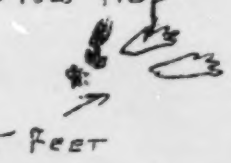
Common Animal Tracks

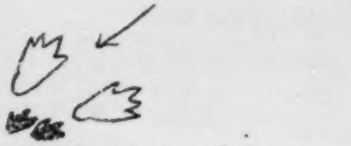
Porcupine



Snowshoe Hare



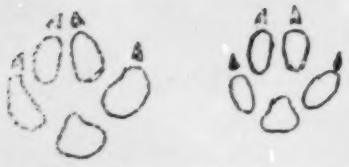


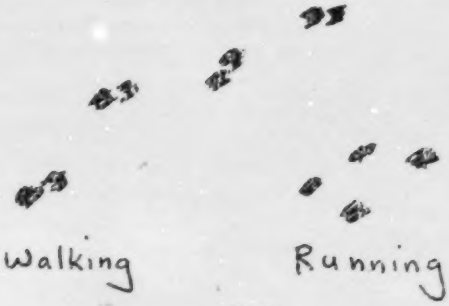


Squirrel

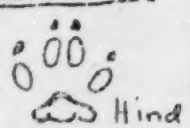
Weasel

Coyote

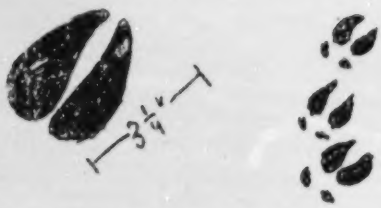




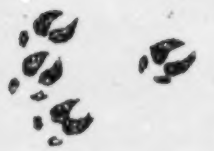
Red Fox



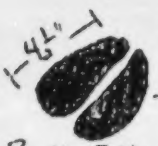
Mule Deer



15 To 20 Feet in a Bound



Elk or Wapiti

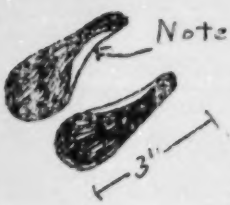


Bull's Hoofs Close Together

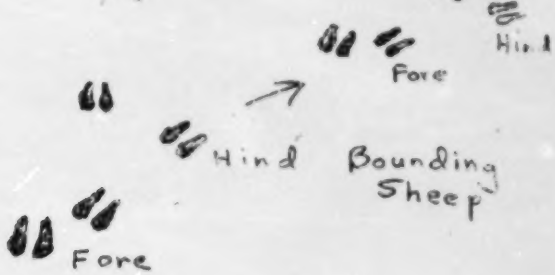
Bull Elk Toes Blunted From Pawing

Cow's Hoofs Wider Apart and more Pointed

Bighorn Sheep



Walk

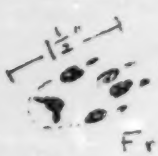


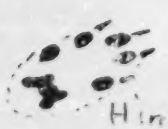
Bounding Sheep

Wild Cat

Mountain Lion (very rare)

Marten





John Moore
Wheat Ridge High School
Wheat Ridge, Colo.

COLORADO OUTWARD BOUND SCHOOL

Box 9038, South Denver Station
Denver, Colorado 80209

EQUIPMENT INVOICE appendix K

Prices subject to change without notice.

NAME BACKPACKING

ADDRESS 30 people

CITY

STATE ZIP CODE

RESPONSIBLE PARTY

MONTH	DAY	YEAR

PATROL COURSE

ISSUED BY

QTY	ITEM	COST	REC	RET	DMGD	LOST	AMT CHRG
X	Avalanche Cord	3.00					
	Avalanche Probe Sections	60					
	Boots	42.00					
33	Candle	N/C					
	Carbiner	2.50					
	Carbiner - Locking	3.00					
33	Canteen Cup	.50					
33	Compass	3.00					
	Diary	N/C					
	Down Jacket	30.00					
33	Ensolite Pad ¼ inch	3.50					
	Ensolite Pad ½ inch	4.50					
	Gaiters	5.00					
33	Ground Sheet	N/C					
	Hard Hat	13.00					
	Helly Hansen Jacket	17.00					
	Helly Hansen Pants	16.00					
	Ice Axe	12.00					
33	Matchbox w/matches	.35					
	Mountain Parka	28.00					
	Overboots	22.00					
33	Packframe	13.00					
33	Packsack	10.00					
	Pair Skis Touring	35.00					
	Pair Ski Poles	8.00					
		10.00					
	Personal Effects Packet	N/C					
	Plastic Food Bag	N/C					
33	Poncho	5.00					
	Prussik Sling 5.5mm x 8'	.75					
	Sleeping Bag, Bigfoot	40.00					
	Sleeping Bag, Ibex	70.00					
33	Sleeping Bag, Superlight	60.00					
33	Sleeping Bag Liner	3.00					
33	Spoon	.30					
33	Stuff Sack	2.00					
33	Water Bottle 1 qt.	.60					
	Webbing Sling 1" x 18'	2.25					
33	Whistle	.50					
	Wind Pants	3.00					

QTY	ITEM	COST	REC	RET	DMGD	LOST	AMT CHRG
9	Fuel btl, qt.	2.00					
9	Cook Set	3.00					
1	Stokes Litter	40.00					
	McKinley Tent						
9	Tarp	20.00					
9	Optimus Stove	18.00					
3	Kirst Aid Belt	35.00					

REC'D BY DATE

RETURNED TO DATE

EQUIPMENT ACCOUNT
BUS CHARGE
STORE ACCOUNT

TOTAL CHARGES

PD

BALANCE DUE

COLORADO OUTWARD BOUND SCHOOL
Box 9038, South Denver Station
Denver, Colorado 80209

EQUIPMENT INVOICE

appendix L

Prices subject to change without notice.

NAME Ski Touring

ADDRESS 30 people

CITY

STATE ZIP CODE

RESPONSIBLE PARTY

MONTH | DAY | YEAR

PATROL COURSE

ISSUED BY

QTY	ITEM	COST	REC	RET	DMGD	LOST	AMT CHRG
X	Avalanche Cord	3.00					
X	Avalanche Probe Sections	.60					
	Boots	42.00					
33	Candle	N/C					
	Carbiner	2.50					
	Carbiner - Locking	3.00					
33	Canteen Cup	.50					
33	Compass	3.00					
	Diary	N/C					
33	Down Jacket	30.00					
	Ensolite Pad ¼ inch	3.50					
33	Ensolite Pad ½ inch	4.50					
33	Gaiters	5.00					
	Ground Sheet	N/C					
	Hard Hat	13.00					
	Helly Hansen Jacket	17.00					
	Helly Hansen Pants	16.00					
	Ice Axe	12.00					
33	Matchbox w/matches	.35					
33	Mountain Parka	28.00					
	Overboots	22.00					
33	Packframe	13.00					
33	Packsack	10.00					
35	Pair Skis Touring	35.00					
35	Pair Ski Poles	8.00					
45	Pair Ski Boots Touring	10.00					
	Personal Effects Packet	N/C					
	Plastic Food Bag	N/C					
	Poncho	5.00					
	Prussik Sling 5.5mm x 8'	.75					
	Sleeping Bag, Bigfoot	40.00					
33	Sleeping Bag, Ibex	70.00					
	Sleeping Bag, Superlight	60.00					
33	Sleeping Bag Liner	3.00					
33	Spoon	.30					
33	Stuff Sack	2.00					
33	Water Bottle 1 qt.	.60					
	Webbing Sling 1" x 18'	2.25					
33	Whistle	.50					
	Wind Pants	3.00					

QTY	ITEM	COST	REC	RET	DMGD	LOST	AMT CHRG
9	Fuel Btl.	2.00					
9	Cook Set	3.00					
1	Stokes Litter	40.00					
9	McKinley tent	150.00					
9	Optimus Stove	38.00					
3	First Aid Belt	35.00					

REC'D BY DATE

RETURNED TO DATE

EQUIPMENT ACCOUNT

BUS CHARGE

STORE ACCOUNT

TOTAL CHARGES

PD

BALANCE DUE

STANDARD PATROL FIRST AID BELT - Provided by OUTWARD BOUND

IN FIRST AID BELT

2-Ace Bandages
1-Adhesive Tape, 2" Roll
1-Airway Tube
1-Bar Soap with Box
1-Bottle Polymagma
1-Bulb Syringe with Tubing
1-Moleskin 9" x 18"
1-Space Blanket
1-Spool Thread
1-Triangle Bandage
2-Surgipad Dressing

IN POCKET OF FIRST AID BELT

20-Bandaids 3/4"
8-Gauze Pads 4" x 4"
8-Telfa Pads 3" x 4"
6-Accident Report Forms
6-Emergency Notice Forms
1-First Aid Booklet
2-Golf Pencils
1-Mountaineering Medicine Booklet

IN METAL BOX OF FIRST AID BELT

1-Bottle Tincture of Benzoine
1-Bottle Oil of Cloves
1-Nail Clippers
1-Package of 8 Pamprin Tablets
6-Safety Pins
1-Scissor
1-Thermometer
1-Tweezer
1-Tube Neosporin Ointment
1-Tube Zinc Oxide
1-Vial Aspirin Tablets
1-Vial Corocidin Tablets
1-Vial Milk of Madnesia Tablets
1-Vial Salt Tablets

Personal Clothing and Equipment for Short Backpacking Courses

1 wool shirt or heavy turtleneck
1 heavy wool sweater
1 pr. wool pants
1 pr. cutoofs or shorts
1 pr. heavy, warm gloves
sunglasses
1 wool stocking cap
2 pr. heavy wool socks
2 pr. light wool socks
hiking boots
1 overjacket or wind breaker that will fit over sweater and shirt combination. Should be relatively waterproof. (OUTWARD BOUND will furnish a poncho, but no light rain gear, such as a 60-40 parka).
sun cream and lip balm
insect repellant
handkerchief
writing materials
toilet kit; towel, soap (biodegradable) tampons, toothbrush and paste, etc.
change of underwear
flashlight

Optional

1 set long underwear
camera and film
day pack
swimwear
sun hat
1 pr. sturdy sneakers
books
plastic bags for carrying food, writing materials, wet clothes, litter, etc.

Note: Wool remains warm even when wet. Items listed as wool should be carefully checked to make sure they are the real thing.

PERSONAL CLOTHING AND EQUIPMENT FOR 3 - 5 DAY SKI TOURING COURSE

1 pair leather or nylon mittens with 2 pair wool liners, or heavy, waterproof ski mittens or gloves

1 set - top and bottom - wool or cotton long underwear

1 heavy wool shirt with tail, or heavy turtleneck

1 heavy wool sweater

1 over jacket or windbreaker that will fit over sweater and shirt combination. Should be relatively waterproof. Spray with Scotch Guard.

1 pair heavy wool pants or knickers

2 pair heavy wool socks

2 pair light wool socks

1 wool hat that will fit over the ears

1 pair sunglasses or sungoggles

suncream and lipbalm

toilet kit, towel, tampons, etc.

change of underwear

handkerchief

durable, waterproof shoes or boots

OPTIONAL AND ENCOURAGED:

camera and film

books (poetry, readings, song lyrics, etc.)

musical instruments

down vest or down jacket

Note: Wool remains warm even when wet. Items listed as wool should be carefully checked to make sure they are the real thing.

MAPS AND COMPASS

Be Expert with Map and Compass. Kjellstrom, Bjorn, American Orienting Service, LaPorte, Indiana, 1967.

Map Reading. U.S. Army, FM-21-26, 1965 (may be found in campus bookstores).

Reading U.S.G.S. Maps. Government Map Sales, Building 41, Denver Federal Center, Denver, Colorado 80225, free handout.

State Index to Topographic Maps. U.S.G.S., Map Sales, Building 41, Denver Federal Center, Denver, Colorado 80225.

The Wilderness Route Finder. 1967, New York, The MacMillan Co.

Orienteering. Disley, John. Eastern Ski Association, 22 High St., Brattleboro, VT. Price $5.00.

WINTER FIRST AID AND MOUNTAIN MEDICINE

Mountaineering First Aid. Reprint from "Mountaineering, the Freedom of the Hills". The Mountaineers, Seattle, paperback. (An excellent pamphlet to carry in your backpack, with your first aid kit.) 1972.

Medicine for Mountaineering. Wilkerson, J. P., M.D., The Mountaineers, Seattle, 1973.

Mountaineering Medicine. Darvill, Jr., Fred T., M.D., Skagit Mountain Rescue Unit, Mt. Vernon, Washington, 1969, paperback (A wilderness medical guide).

Being Your Own Wilderness Doctor. Kodet, E., Stackpole Books, Harrisburg, Pa. 1968.

Functional Bandaging, Including Splints and Protective Dressings. Meyer, Seymour, American Elsevier Publishing Co., N.Y., 1967.

International Mountain Rescue Handbook. MacInnes, Hamish, Scribner's, N.Y. 1973.

HYPOTHERMIA AND FROSTBITE

Frostbite, What It Is — How to Prevent It — Emergency Treatment. Washburn, Bradford, Museum of Science, Boston, 1970.

Hypothermia: Killer of the Unprepared. Lathrop, Theodore, M.D., Mazamas, Portland, Oregon, 1972.

The Problem of Acute Hypothermia. Starkov, P., Pergamon Press, N.Y., 1960.

REGIONAL GUIDEBOOKS

Because of the unique regional characteristics of ski touring from one section of the country to another, there have been numerous excellent regional guidebooks dealing with the locales, programs, and special climate and technical conditions of a specific region.

Most of the divisional offices of the United States Ski Association maintain current lists of these guidebooks for their region, and for specific areas we suggest you contact the USSA divisional office in your region:

Northeast: Eastern Ski Association
22 High Street
Brattleboro, Vermont 05301

Midwest: Central Division —
USSA, P.O. Box 66014
AMF O'Hare, Chicago, Illinois
60666

Intermountain: c/o Rob Kiesel
Box 319
Ketchum, ID 83440

Southern Rocky Mountain: Rocky Mountain Division —
USSA ,1463 Larimer Square
Denver, Colorado 80202

Northern Rocky Mountain: Northern Division —
USSA, 1111 North 7th
Bozeman, Montana 59715

Pacific Northwest: Pacific Northwest Division —
USSA, P.O. Box 6228
Seattle, Washington 98188

Far West: Far West Ski Association
1313 W. 8th Street
Los Angeles, California 90017

Alaska: Alaska Division —
USSA, P.O. Box 4-2126
Anchorage, Alaska 99509

General Bibliography of Ski Touring Literature

Forest Service, U.S.D.A.
U.S. Ski Association

It is important to remember that there are practical and technical aspects involved that affect the enjoyment and enrichment of ski touring—to say nothing of the safety and well-being of the participants—and most of the basic aspects have been covered in depth and detail in the growing volume of ski touring literature.

The bibliography that follows is by no means complete. It is designed to provide a comprehensive general list of reference material for the would-be or beginning ski tourer. Although we have omitted the work of many fine authors, the literature listed here is representative of general material available on the basics of ski touring and winter mountaineering.

BASIC SKI TOURING

Manual of Ski Mountaineering. Brower, David, ed. 1969, The Sierra Club, San Francisco, California. Ballantine Books, New York, 4th ed., 1969.

Mountaineering, the Freedom of the Hills. 1974. The Mountaineers ed. by Harvey Manning.

The New Cross Country Ski Book. Caldwell, John, 1973, The Stephen Green Press, Brattleboro, Vermont.

Complete Cross Country Skiing and Ski Touring. Lederer, William J. and Wilson, Joe Pete, W. W. Norton and Co., Inc., New York, revised ed. 1972.

Ski Touring, An Introductory Guide. Osgood, William E. and Hurley, Leslie J., C. E. Tuttle Publishing Co., Rutland, Vermont, 1969.

The Cross Country Skiing Handbook. Baldwin, Edward R., Charles Scribner's Sons, New York 1972.

Nordic Touring and Cross Country Skiing. Brady, Michael, Dreyers Forlag, Oslo, Norway, 1971.

Let's Learn Ski Touring, Your Guide to Cross Country Fun. Tinker, Gene, Walker and Co., New York 1971 (for children).

Wilderness Skiing. Tejada-Flores and Steck, Sierra Club Books, 1972.

Waxing. Brady and Skjemstad, Eiger Mountain Sports, San Fernando, Calif., 1971.

The Sierra Club Manual of Ski Mountaineering. Brower ed., Scribner's, New York, 1962.

Cross-Country Skiing. Brunner, Hans, McGraw-Hill, Ryerson, New York, 1972.

The Pleasures of Cross Country Skiing. Lund, Horten, Outerbridge and Lazard, New York, 1972.

The Cross-Country Ski Cook, Look & Pleasure Book. Painter, Wilderness Press, Berkeley, 1973.

Ski Touring For The Beginner. Rusin, Bill, Silva, Inc., LaPorte, Indiana.

XC Cross Country Skiing. Tobey Publishing Co., Box 428, New Canaan, Conn., paperback.

The Complete Guide to Cross-Country Skiing and Touring. Tokle, Art, and Luray, Martin, Holt, Rinehart and Winston, Inc., 383 Madison Ave., New York, N.Y.

Technical Specifications and Standards for Ski-Orienteering. Ski Orienteering Committee of the International Orienteering Federation, American Orienteering Service, P.O. Box 4425, Colorado Springs, Colorado.

AVALANCHES

Snow Avalanches. Forest Service Handbook H2-2332.81, U.S. Forest Service, 1961, for sale, Government Printing Office, Washington, D.C. (Describes snow mechanics, hazard forecasting avalanches; and rescue.)

The Avalanche Enigma. Fraser, Colin, Rand McNally and Co., Chicago, 1966.

The ABC of Avalanche Safety. LaChappelle, E. R., Highlander Publishing Co., 1970, paperback, 2nd ed., revised.

Snowy Torrents — Avalanche Accidents in the U.S. 1910-1966. Gallagher, Alta Avalanche Study Center, Ogden, 1967.

WILDERNESS SURVIVAL AND WINTER TRAVEL

Outdoor Living: Problems, Solutions, Guidelines. Fear, Eugene, Tacoma Unit of Mountain Rescue Council, Tacoma, Washington, 1970, paperback.

Skiers Exercise Book, A Guide for Conditioning. Davidson, Paul and Fuller, Robert, A. S. Barnes and Co., Inc., Cranberry, New Jersey, 1968.

The Complete Snow Camper's Guide. Bridge, Scribner's, New York, 1973.

Wilderness Survival: A Complete Handbook and Guide for Survival in the North American Wilds. Berglund, Berndt, Scribner's, N.Y. 1972.

Surviving the Unexpected Wilderness Emergency. Fear, Gene, Survival Education Association, Tacoma, Wash. 1973.

Bushcraft: A Serious Guide to Survival and Camping. Graves, Richard H., Schocken Books, N.Y. 1972.

The Survival Handbook. Merrill, William K., Winchester Press, N.Y., 1972.

The Snowshoe Book. Osgood, William E., and Hurley, Leslie J., Publisher Stephen Greene Press, Brattleboro, Vermont, paperback.

Winter Hiking and Camping. Adirondack Mountain Club, Inc., R.D. 1, Ridge Road, Glens Falls, N.Y. 12801.

Wilderness Skiing. Steck, Allen and Lito Tejada-Flores, Sierra Club Books, 597 5th Ave., New York, N.Y. 10017.

Making It. Hitchcock and Fox, Livingston Publishing Co., Wynnewood, PA., 1973.

THINK HYPOTHERMIA

If you are outdoors for recreation, you presumably do not intend to jeopardize your life.

Hypothermia may be a new word to you, but it's the *only* word that describes the rapid, progressive mental and physical collapse accompanying the chilling of the inner core of the human body.

Hypothermia is caused by exposure to cold, aggravated by wet, wind, and exhaustion. It is the #1 killer of outdoor recreationists.

- **TAKE HEED OF "HYPOTHERMIA WEATHER."**
- **WATCH CAREFULLY FOR WARNING SYMPTOMS.**
- **CHOOSE EQUIPMENT WITH HYPOTHERMIA IN MIND.**
- ***THINK HYPOTHERMIA.***

NOTES ON EQUIPMENT

Choose rainclothes that are proof against *wind-driven* rain and cover head, neck, body, and legs. Polyurethane coated nylon is best. The coatings won't last forever. Inspect carefully and test under a cold shower before you leave home. Ponchos are poor protection in wind.

Take woolen clothing for hypothermia weather: 2-piece woolen underwear . . . or . . . long wool pants and sweater or shirt. Include a knit cap that can protect neck and chin. Cotton underwear is worse than useless when wet.

A stormproof tent gives best shelter. Take plastic sheeting and nylon twine for rigging additional foul-weather shelter.

Carry trail food . . . nuts, jerky, and candy . . . and keep nibbling during hypothermia weather.

Take a gas stove or a plumber's candle, flammable paste, or other reliable firestarter.

- **DON'T WAIT FOR AN EMERGENCY. *USE* THESE ITEMS TO AVOID OR MINIMIZE EXPOSURE.**

Release prints of
. . . BY NATURE'S RULES
are available from
JIM LAWLESS,
MOTION PICTURE CONSULTANTS, INC.
1545 N.E. 130th St.
Seattle, Washington 98125

AR-32 10/70 PRINTED IN U.S.A.

FOUR LINES OF DEFENSE AGAINST HYPOTHERMIA

From the motion picture
. . . BY NATURE'S RULES

COLD KILLS IN TWO DISTINCT STEPS

STEP ONE: EXPOSURE AND EXHAUSTION

The moment your body begins to *lose heat* faster than it produces it, you are under-going exposure. Two things happen:

1. You voluntarily *exercise to stay warm*.
2. Your body makes involuntary adjustments to preserve *normal temperature in the vital organs*.

Either response drains your energy reserves. The only way to stop the drain is to reduce the degree of exposure...

● THE TIME TO PREVENT HYPOTHERMIA IS DURING THE PERIOD OF EXPOSURE AND GRADUAL EXHAUSTION.

STEP TWO: HYPOTHERMIA

If exposure continues until your energy reserves are exhausted:

1. Cold reaches the brain depriving you of judgement and reasoning power. *You will not realize this is happening.*
2. You will lose control of your hands.

This is hypothermia. Your internal temperature is sliding downward. Without treatment, this slide leads to stupor, collapse, and death.

YOUR FIRST LINE OF DEFENSE: AVOID EXPOSURE

1. STAY DRY. When clothes get wet, they lose about 90% of their insulating value. Wool loses less; cotton, down, and synthetics lose more.
2. BEWARE THE WIND. A slight breeze carries heat away from bare skin much faster than still air. Wind drives cold air under and through clothing. *Wind refrigerates wet clothes* by evaporating moisture from the surface. WIND MULTIPLIES THE PROBLEMS OF STAYING DRY.
3. UNDERSTAND COLD. Most hypothermia cases develop in air temperatures between 30 and 50 degrees. Most outdoorsmen simply can't believe such temperatures can be dangerous. They fatally underestimate the danger of being wet at such temperatures.
   - 50 degree *water* is unbearably cold. The cold that kills is *cold water* running down neck and legs, *cold water* held against the body by sopping clothes, *cold water* flushing body heat from the surface of the clothes.

- DON'T ASK, "HOW COLD IS THE AIR?" ASK INSTEAD, "HOW COLD IS THE WATER AGAINST MY BODY?"
4. USE YOUR CLOTHES. Put on raingear *before* you get wet. Put on wool clothes *before* you start shivering.

YOUR SECOND LINE OF DEFENSE: TERMINATE EXPOSURE

If you cannot stay dry and warm under existing weather conditions, using the clothes you have with you, *terminate exposure*.

1. BE BRAVE ENOUGH TO GIVE UP REACHING THE PEAK OR GETTING THE FISH OR WHATEVER YOU HAD IN MIND.
2. Get out of the *wind and rain*. Build a fire. Concentrate on making your camp or bivouac as secure and comfortable as possible.

NEVER IGNORE SHIVERING

Persistent or violent shivering is clear warning that you are on the verge of hypothermia. MAKE CAMP.

FORESTALL EXHAUSTION

Make camp while you still have a reserve of energy. Allow for the fact that exposure greatly reduces your normal endurance.

You may think you are doing fine when the fact that you are exercising is the only thing preventing your going into hypothermia. If exhaustion forces you to stop, however briefly:

1. Your rate of body heat production instantly drops by 50% or more.
2. Violent, incapacitating shivering may begin immediately.
3. You may slip into hypothermia in a matter of minutes.

APPOINT A FOUL-WEATHER LEADER

Make the best-protected member of your party responsible for calling a halt before the least protected member becomes exhausted or goes into violent shivering.

YOUR THIRD LINE OF DEFENSE: DETECT HYPOTHERMIA

If your party is exposed to wind, cold, and wet, THINK HYPOTHERMIA. Watch yourself and others for symptoms:

1. Uncontrollable fits of shivering.
2. Vague, slow, slurred speech.
3. Memory lapses. Incoherence.
4. Immobile, fumbling hands.
5. Frequent stumbling. Lurching gait.
6. Drowsiness (to sleep is to die.)
7. Apparent exhaustion. Inability to get up after a rest.

YOUR FOURTH AND LAST LINE OF DEFENSE: TREATMENT

The victim may deny he's in trouble. Believe the symptoms, not the patient. Even mild symptoms demand immediate, drastic treatment.

1. Get the victim out of the wind and rain.
2. Strip off *all* wet clothes.
3. If the patient is only mildly impaired:
   a. Give him warm drinks.
   b. Get him into dry clothes and a warm sleeping bag. Well-wrapped, warm (not hot) rocks or canteens will hasten recovery.
4. If the patient is semi-conscious or worse:
   a. Try to keep him awake. Give warm drinks.
   b. Leave him stripped. Put him in a sleeping bag with another person (also stripped). If you have a double bag, put the victim between *two* warmth donors. *Skin to skin contact* is the most effective treatment.
5. Build a fire to warm the camp.

SNOW AVALANCHE

GENERAL RULES FOR AVOIDING & SURVIVING SNOW AVALANCHES

U.S. Department of Agriculture - Forest Service
Program Aid No. 1090

INTRODUCTION

Large and small avalanches can have tremendous force and are a serious threat to winter travelers.

The more time that you spend in skiing, snowshoeing, snowmobiling, and other winter activities, the greater are your chances of being caught by snow avalanches.

Knowledge can help you avoid being caught by a snow avalanche; it will help you survive if you are buried.

Snow avalanches are complex, natural phenomena. Experts do not fully understand all the causes. No one can predict avalanche conditions with certainty. But the general guidelines in this folder will aid a thinking observer develop judgment about the presence and degree of avalanche danger.

Play safe. If in doubt, stay out of avalanche hazard areas.

SNOW AVALANCHES

There are two principal types of snow avalanches. These are loose snow and slab avalanches.

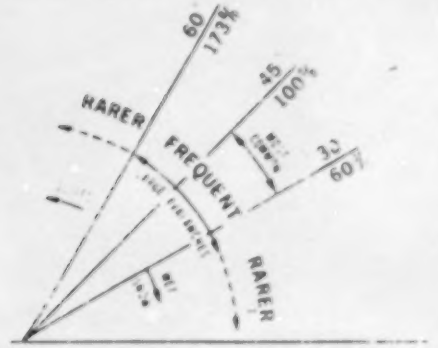
Loose snow avalanches start at a point or over a small area. They grow in size and the quantity of snow involved increases as they descend. Loose snow moves as a formless mass with little internal cohesion.

Slab avalanches, on the other hand, start when a large area of snow begins to slide at once. There is a well-defined fracture line where the moving snow breaks away from the stable snow. Slab avalanches are characterized by the tendency of snow crystals to stick together. There may be angular blocks or chunks of snow in the slide.

Practically all accidents are caused by slab avalanches. Many times the victims have triggered the avalanche themselves. Their weight on the stressed snow slab is enough to break the fragile bonds that hold it to the slope.

TERRAIN FACTORS

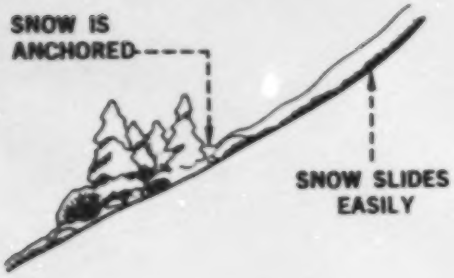
Slope Steepness – Avalanches are most common on slopes of 30 to 45 degrees (60 to 100 percent), but large avalanches do occur on slopes ranging from 25 to 60 degrees. The diagram below shows the slopes where avalanches are most common.



Slope Profile – Dangerous slab avalanches are more likely to occur on convex slopes, but may also occur on concave slopes. Short slopes may be as dangerous as long slopes!

Slope Aspect – Snow on north-facing slopes is more likely to slide in midwinter. South-facing slopes are dangerous in the spring and on sunny days. Leeward slopes are dangerous because wind-deposited snows add depth and create hard, hollow-sounding wind slabs. Windward slopes, generally, have less snow; and the snow is compacted, but usually strong enough to resist movement.

Ground Cover – Large rocks, trees, and heavy brush help anchor the snow. Smooth, grassy slopes are more dangerous, but avalanches can start even among trees.



WEATHER FACTORS

Old Snow – When the old snow depth is sufficient to cover natural anchors – such as rocks and brush – additional snow layers will slide more readily. The nature of the old snow surface is important. Rough surfaces favor stability; smooth surfaces, such as sun crusts, are unstable. A loose, underlying snow layer is more dangerous than a compacted one. Check the underlying snow layer with a ski pole, ski, or rod.

Wind – Sustained winds of 15 miles per hour and over cause danger to increase rapidly. Snow plumes from ridges and peaks indicate that snow is being moved onto leeward slopes. This can create dangerous conditions.

SNOW IS DEPOSITED ON LEEWARD SLOPE AND FORMS SLABS

Storms – A high percentage (about 80 percent) of all avalanches occur during, and shortly after, storms. Be extra cautious during these periods. Loose, dry snow slides easily. Moist, dense snow tends to settle rapidly, but during windy periods can be dangerous.

Rate of Snowfall – Snow falling at the rate of 1 inch per hour, or more, increases avalanche danger rapidly.

Crystal Types – Observe general snow-crystal types by letting them fall on a dark ski mitt or parka sleeve. Small crystals – needles and pellets – result in more dangerous conditions than the usual, star-shaped crystals.

New Snow – Be alert to dangerous conditions with a foot, or more, of new snow.

Temperature – Snow persists in an unstable condition under cold temperatures. It will settle and stabilize rapidly when temperatures are near, or just above, freezing.

Storms starting with low temperatures and dry snow, followed by rising temperatures, are more likely to cause avalanches. The dry snow at the start forms a poor bond and has insufficient strength to support the heavier snow deposited late in the storm.

Rapid changes in weather conditions (wind, temperature, snowfall) cause snowpack adjustments. Therefore, be alert to weather changes. Snowpack adjustment may affect its stability and cause an avalanche.

Wet Snow – Rainstorms or spring weather with warm winds and cloudy nights can warm the snow cover. The resulting free and percolating water may cause wet snow avalanches.

Wet snow avalanches are more likely on south slopes and slopes under exposed rock.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1974 – 551-626

GENERAL OBSERVATIONS

Old Slide Paths – Generally, avalanches occur in the same areas. Watch for avalanche paths. Look for pushed-over small trees, trees with limbs broken off. Avoid steep, open gullies and slopes.

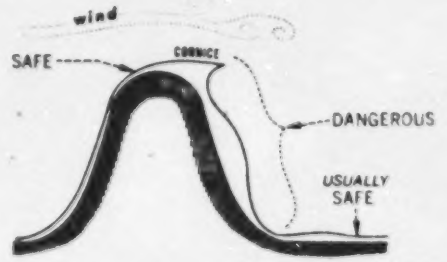
Recent Avalanche Activity – If you see new avalanches, suspect dangerous conditions. Beware when snowballs or "cartwheels" roll down the slope.

Sounds and Cracks – If the snow sounds hollow, particularly on a leeward slope, conditions are probably dangerous. If the snow cracks and the snow cracks run, this indicates slab avalanche danger is high.

Information – Check the local weather forecasts. Contact the Forest Service snow ranger or the nearest winter sports area ski patrol.

ROUTE SELECTION AND PRECAUTIONS

The safest routes are on ridgetops and slightly on the windward side, away from cornices. Windward slopes are usually safer than leeward slopes. If you cannot travel on ridges, the next safest route is out in the valley, far from the bottom of slopes.



Avoid disturbing cornices from below or above. Gain ridgetops by detouring around cornice areas.

Route Selection – If you must cross dangerous slopes, stay high and near the top. If you see avalanche fracture lines in the snow, avoid them and similar snow areas.

If you must ascend or descend a dangerous slope, go straight up or down; do not make traverses back and forth across the slope.

Take advantage of areas of dense timber, ridges, or rocky outcrops as islands of safety. Use them for lunch and rest stops. Spend as little time as possible on open slopes.

Snowmobiles should not cross the lower part of slopes. Do not drive a snowmobile across especially long open slopes or known avalanche paths.

Obey signs closing slopes due to avalanche danger.

Only one person at a time should cross a dangerous slope. All others should watch him. Remove ski pole straps, ski safety straps, loosen all equipment, put on mitts, cap, and fasten clothing before you travel in any areas where there is avalanche danger.

Carry and use an avalanche cord; carry a sectional probe.

AVALANCHE SURVIVAL

If You Are Caught in an Avalanche:

Discard all equipment.

Get away from your snowmobile.

Make swimming motions. Try to stay on top; work your way to the side of the avalanche.

Before coming to a stop, get your hands in front of your face and try to make an air space in the snow as you are coming to a stop.

Try to remain calm.

If You Are the Survivor:

Mark the place where you last saw the victim.

Search for him directly downslope below the last seen point. If he is not on the surface, scuff or probe the snow with a ski pole or stick.

You are the victim's best hope for survival.

Do not desert him and go for help, unless help is only a few minutes away. Remember, you must consider not only the time required for you to get help, but the time required for help to return. After 1 hour, the buried victim has only a 50-percent chance of surviving.

If There Is More Than One Survivor:

Send one for help while the others search for the victim. Have the one who goes for help mark the route so a rescue party can follow back.

Contact the ski patrol, local sheriff or Forest Service.

First Aid

Treat for suffocation and shock.

July 1974

Winter Travel in the National Forests

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
PROGRAM AID NO. 1089
ISSUED JULY 1974

A DIFFERENT WORLD

Many people are unaware of the hazards of winter travel. Harsh conditions of wind, cold, snow, or whiteout can turn an outing into a tragedy. Knowledge of the area, weather, route, and the limitations of your body and equipment—plus a little common sense—can ensure a safe and enjoyable trip.

This folder will inform you of some of the hazards and precautions involved in winter travel.

WHERE TO GO

Most of the National Forest land is open for unrestricted winter travel. However, there are parts of the National Forests that have restrictions, as shown on Forest Service "Travel Maps." These restrictions include motorized vehicle closures, avalanche area closures and hazardous roads. Travel Maps, general recreation maps, and information are available at Forest Service offices without cost.

SHARE THE COUNTRY

The National Forests are big, but in some areas those traveling by skis, snowshoes, and snowmobiles must share the same routes and areas. Common sense and courtesy will provide a safe and pleasant experience for everyone. The following suggestions are for your benefit.

1. Snowmobiles should operate at minimum speed near skiers or snowshoers. Do not accelerate until well beyond those on foot.

2. Skiers and snowshoers should yield the track to oncoming or overtaking snowmobiles unless the track is wide enough for safe passage.

3. Snowmobiles are not permitted on developed ski areas. Ski touring and snowshoeing may be restricted or regulated. Check with the local Ranger or ski area manager.

LEAVE WORD

Before you leave, notify a responsible person of:

1. Your planned route of travel. Mark it on a map for them.

2. Your planned departure time.

3. Your planned time of return—*be sure you check back in.*

When someone is overdue—keep calm. Notify the County Sheriff or District Ranger in the trip area. Either will then take steps to alert or activate the local search and rescue organization. If the missing person returns later, be sure you advise the Sheriff or Ranger.

CLOTHING AND EQUIPMENT

Layers of clothing, which can be adjusted to prevailing conditions, are best. A good quality windbreaker jacket and wind pants are excellent. Avoid tight fitting clothes and boots which may restrict circulation. Take extra socks and gloves or mittens, warm cap, matches in a waterproof container, candle, firestarter (000 steel wool works well), nylon cord, general purpose knife, high energy food, plastic tarp, space blanket, signal mirror, first aid kit, wide tape for repairs, and metal container for melting snow.

Frostbite

Frostbite is caused by exposure of inadequately protected flesh to sub-freezing temperatures. Tissue damage is caused by the reduced blood flow to the extremities as opposed to hypothermia, which causes lowering of the body's rate of metabolism.

Symptoms:

Loss of feeling and a dead white appearance.

Prevention:

Party members should periodically observe their companions, especially nose and cheeks for signs of frostbite. Snowmobilers, due to their speed of travel, are particularly susceptible to frostbite.

Treatment:

Restore body temperature as rapidly as possible, preferably by immersion in a water bath of less than 110° temperature or by other means. If necessary to continue moving, the affected part should be kept covered and the victim moved to a location where effective treatment and vehicle evacuation can be obtained.

Hypothermia

Hypothermia is the rapid and progressive mental and physical collapse resulting from lowering the inner temperature of the human body. It is caused by exposure to cold, aggravated by wet, wind and exhaustion. Hypothermia can result in death if untreated.

Symptoms:

Fits of shivering
Vague, slurred speech
Memory lapses
Fumbling hands, lurching walk
Drowsiness and exhaustion
Apparent unconcern about physical discomfort.

These symptoms are usually noticed by others before the victim is aware of them.

Treatment:

Get the victim out of the wind and wet, into dry clothes and restore body temperature with warm drinks, quick energy food, body contact and a warm sleeping bag.

Prevention:

Avoid exposure—stay dry and out of the wind. Hypothermia commonly develops at 30°–50° air temperatures when the victim is wet. Take suitable clothing for the worst expected weather.

Terminate exposure—if you are unable to stay warm and dry, give up your trip goal, get out of the wind, build a fire and make camp. Uncontrollable shivering is a sure sign of impending hypothermia. Make camp while you still have an energy reserve. The fact that you are exercising may be the only thing preventing your going into hypothermia.

Altitude Sickness

At 10,000 feet, air contains only 2/3 of the volume of oxygen that it does at sea level. In addition, the higher air pressure at sea level easily forces the available oxygen through the thin lining of the lungs into the bloodstream. At higher elevations there is less air pressure and the available oxygen is not so easily forced through the lung walls.

Symptoms:

Listlessness, loss of appetite, weakness, apathy, nausea, dizziness and drowsiness.

Treatment:

Stop and rest, breathe deeply a few times, obtain nourishment from simple sugars like candy or fruit juices. Travel to lower elevations.

Prevention:

Keep in good physical condition and eat a well-balanced diet. Avoid sudden trips to high altitudes which involve immediate physical exercise.

Hyperventilation

Symptoms:

This reaction to altitude is caused by too rapid breathing and decrease of the carbon dioxide level in the blood causing lightheadedness and cold feeling. Victims are apprehensive and excited.

Snowmobilers should be certain to have wrench, pliers, extra sparkplugs and drive belt. Experienced snowmobilers always carry snowshoes (in case of machine failure) as well as the normal emergency and survival gear for winter.

DON'T GET LOST

Avoid becoming lost by:

1. Taking a good map.
2. Learning to read it and knowing how to locate your position.
3. Learning to read a compass and believing it.
4. Checking weather forecasts and avoiding storms.

It is easy to become disoriented in the whiteouts of winter and when physically exhausted.

IF YOU ARE LOST, INJURED OR YOUR EQUIPMENT HAS FAILED

Keep calm—decide on a plan. Trust your compass. Backtrack, if possible. If impractical, remain in place. Stay together, if possible. If not, send at least two people for help.

Don't abandon your showshoes or skis. Build a fire and shelter—stay warm.

Mark your base camp so it is visible from the air.

Distress Signals—three smokes, three blasts of a whistle, three shouts, three flashes of light, three of anything that will attract attention.

HAZARDS

Avalanches

Snow on slopes exceeding 25° (55%) may slide under the right snow, temperature and other conditions. Narrow clearings running with the steep axis of slopes and wide open steep slopes are possible avalanche paths and should be avoided.

The safest routes are on ridgetops and slightly on the windward (side toward the wind) side, away from cornices. Windward slopes are usually safer than leeward (side away from the wind) slopes. If you cannot travel on ridges, the next safest route is out in the valley, away from the bottom of slopes.

Obey signs warning of avalanche hazard. These signs are usually posted only at winter sports areas. Avalanche hazards outside of developed sites are not generally identified.

Wind, Temperature, and Moisture

These weather factors can greatly affect the safety of a winter traveler. Each contributes to the loss of body heat. The "Wind Chill" chart illustrates the effect of wind and temperature on a dry, properly clothed person. If clothing is wet from perspiration or precipitation, the net effect of wind and temperature is much greater.

WIND SPEED	COOLING POWER OF WIND EXPRESSED AS "EQUIVALENT CHILL TEMPERATURE"											
MPH	TEMPERATURE (°F)											
CALM	40	30	20	10	5	0	-10	-20	-30	-40	-50	-60
	EQUIVALENT CHILL TEMPERATURE											
5	35	25	15	5	0	-5	-15	-25	-35	-45	-55	-70
10	30	15	5	-10	-15	-20	-35	-45	-60	-70	-80	-85
15	25	10	-5	-20	-25	-30	-45	-60	-70	-85	-100	-110
20	20	5	-10	-25	-30	-35	-50	-65	-80	-95	-110	-120
25	15	0	-15	-30	-35	-45	-60	-75	-90	-105	-120	-135
30	10	0	-20	-30	-40	-50	-65	-80	-95	-110	-125	-140
35	10	-5	-20	-35	-40	-50	-65	-80	-100	-115	-130	-145
40	10	-5	-20	-35	-45	-55	-70	-85	-100	-115	-130	-150
LITTLE DANGER				INCREASING DANGER (Flesh may freeze within 1 min.)				GREAT DANGER (Flesh may freeze within 30 seconds)				

Frosbite or hypothermia are the common dangers due to wind, temperature, and moisture.

Treatment:

Calm the victim, have them relax and breathe into a glove, bag or hat until normal breathing is restored.

Prevention:

Same as altitude sickness.

Nutrition

A good rule is "Lightweight but loaded," meaning loaded with calories. Plan your meals to ensure a balanced diet of high energy foods.

Water is often difficult to find in the winter. All that is available may be what you take or can melt. Replacement of fluid loss is very important for maintaining physical condition. The body loses as much as 2–4 quarts of fluid per day under exertion and replacing this fluid can be very difficult if you are not equipped to melt snow. Snow commonly contains only 10–20% water and eating it provides limited fluid replacement. In addition, melting snow by body contact drains energy and cools the body temperature. Save your calories.

Sanitation

What you carry in, you can carry out. Take food in burnable containers or easily compressed packages such as foil that requires little space in your gear.

Avoid leaving human waste near any water course. If you are in a group, avoid concentrating wastes. Nature can assimilate only small quantities at a time.

REFERENCES

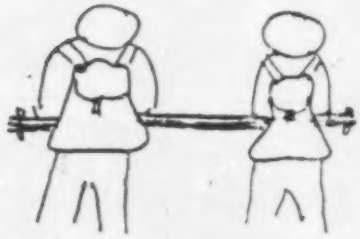
1. Snow Avalanche, Forest Service, USDA, Washington, D.C. 20250.
2. National Forest Snowmobiling, Forest Service, USDA, Rocky Mountain Region, Denver Colorado 80225.
3. Four Lines of Defense Against Hypothermia, SAFECO Insurance Companies, P.O. Box 5687, Denver, Colorado 80217.
4. Survival In Snow, Soil Conservation Service, USDA, Denver, Colorado.
5. Survival Manual, Colorado Division of Wildlife, 6060 Broadway, Denver, Colorado 80216.
6. Wilderness Survival Manual, Life Support Technology, Inc., Portland, Oregon.

☆ U.S. G.P.O. 796-134

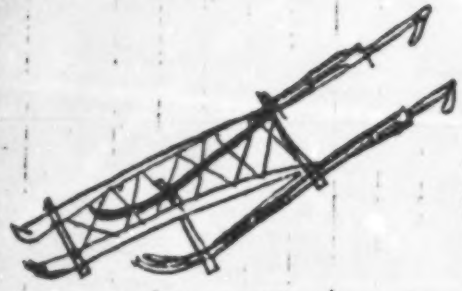
Litter

4 ski poles
2 ice axe
2 snow shoe
core

2 man pole seat

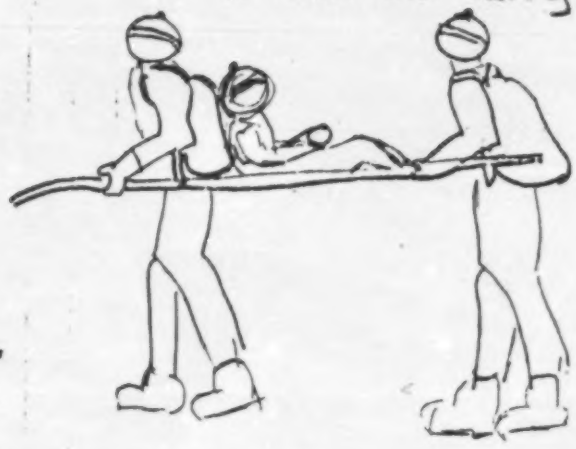


appendix Q
2 summit packs
3 or 4 ski poles



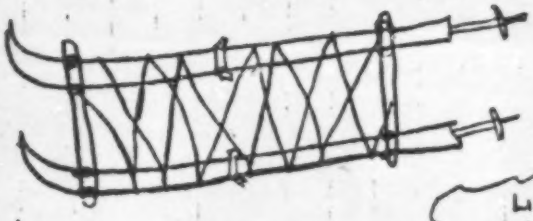
four ski dray

2 man ski carry



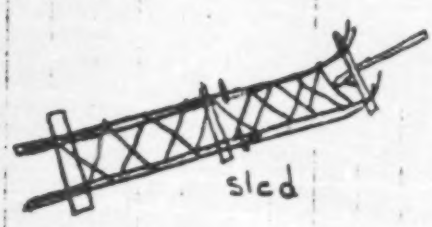
Ski
Jackets
Summit pack

zip jacket



Litter or dray

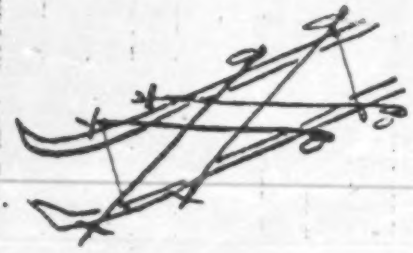
Line litter or dray with Poncho



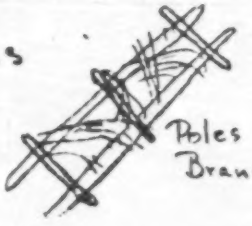
sled

Spare cord should be carried with first aid supplies

Summit Pack one man carry



Lash ski poles + skis

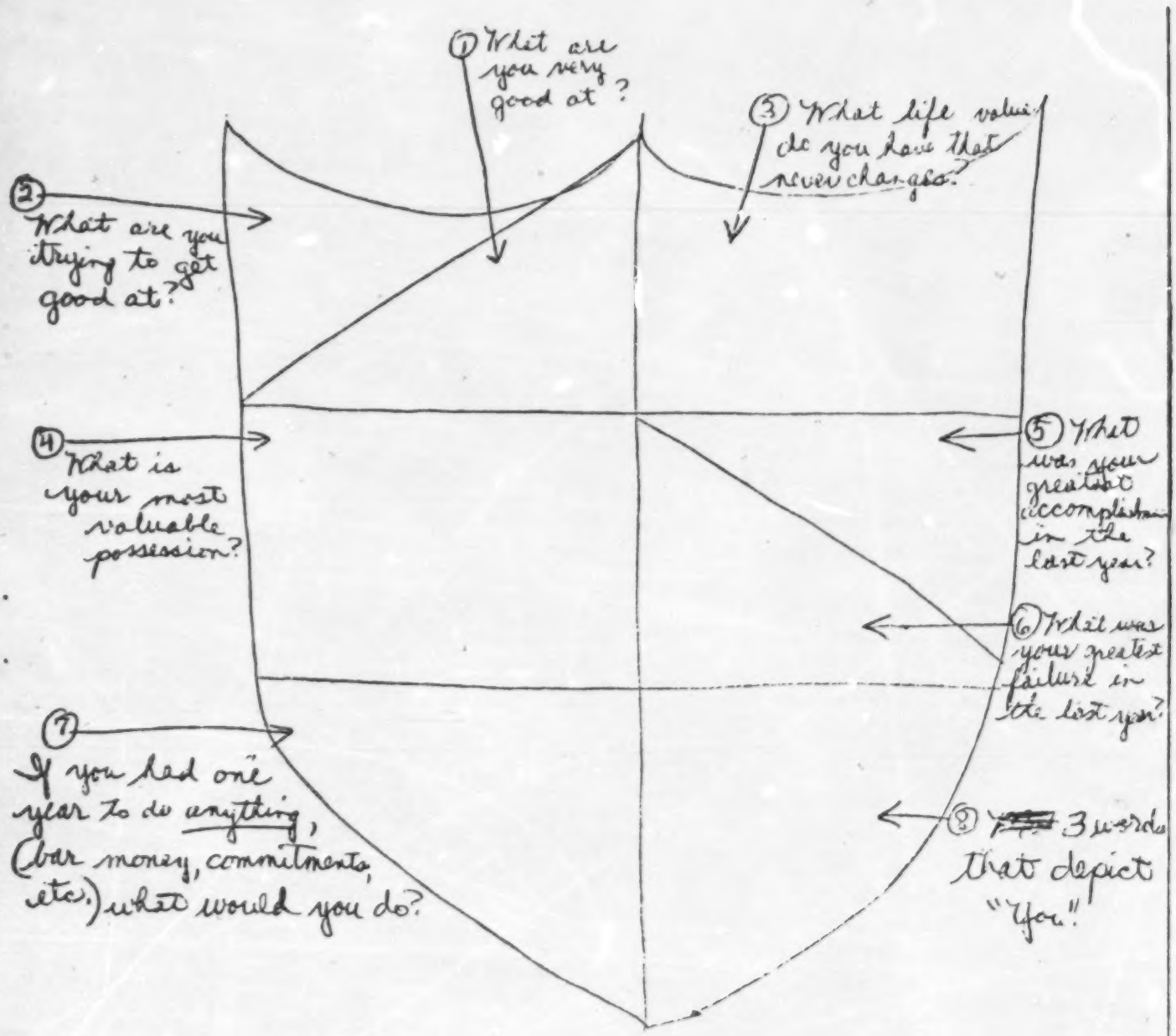


Poles
Branches

Survey your equipment
use good common sense
have basic first aid knowledge

Effinger 1975

COAT OF ARMS


(1) What are you very good at?
(3) What life values do you have that never change so?
(2) What are you trying to get good at?
(4) What is your most valuable possession?
(5) What was your greatest accomplishment in the last year?
(6) What was your greatest failure in the last year?
(7) If you had one year to do anything, (bar money, commitments, etc.) what would you do?
(8) 3 words that depict "You"

Colorado OUTWARD BOUND School

Evaluation - Ski Touring Program

Name _____

(1) Excellent
(2) Well Done
(3) Satisfactory
(4) Fair
(5) Unsatisfactory

Using the above scale, please rate the effectiveness of the instruction on the following points, circling one. We would also like your written comments.

		EX	WD	S	F	UN	COMMENTS
1.	Ski touring techniques						
	Flat track	1	2	3	4	5	
	Uphill	1	2	3	4	5	_____
	Downhill and Control	1	2	3	4	5	
2.	Waxing	1	2	3	4	5	_____
3.	Environmental awareness	1	2	3	4	5	
4.	Mountaineering techniques						_____
	Map Reading	1	2	3	4	5	
	Compass Navigation	1	2	3	4	5	_____
	First Aid	1	2	3	4	5	

5. Who was your instructor?_____

How would you rate him/her. 1 2 3 4 5
Additional comments please.

6. What was the best part of this experience for you?

7. What was the least rewarding aspect of this trip for you?

8. Please check yes or no on the following:

Did this experience:	Yes	No
enable you to function more effectively as a group member	_____	_____
provide you with improved interpersonal communication with your peers or classmates	_____	_____
provide you with improved interpersonal communication with your teachers	_____	_____
increase your empathy and compassion for others regardless of their sex, race, or socio-economic differences	_____	_____

Comment on these questions:

9. What did you learn from this experience?

10. We would appreciate any further comments you may have to help us improve our program.

PUBLICATIONS AVAILABLE FROM THE COLORADO OUTWARD BOUND SCHOOL

OUTWARD BOUND APPROACHES TO ALTERNATIVE SCHOOLING	$1.00
ADVENTURE CURRICULUM: PHYSICAL EDUCATION	$4.00
EAST HIGH SCHOOL SEMINAR EVALUATION 1973	$1.00
MITCHELL SENIOR SEMINAR, 1973-1974	$4.00
MITCHELL HIGH SCHOOL NEWSPAPER	.25
COMMUNITY ENVIRONMENTAL EDUCATION PROGRAM	.50
ANALYSIS OF IMPACT OF OB ON TWELVE HIGH SCHOOLS, 1971	$1.00
OUTWARD BOUND AND HIGHER EDUCATION	.50
MEASUREMENT OF AFFECTIVE EDUCATION	.50
OB SCHOOLS AS ALTERNATIVE TO INSTITUTIONALIZATION FOR ADOLESCENT DELINQUENT BOYS, 1968	$5.00
HOMEWARD BOUND	.50
WILDERNESS ADVENTURE TRAINING AS ALTERNATIVE TO INCARCERATION	.50
AN ENVIRONMENTAL HANDBOOK OF THE MARBLE AREA	$1.50
RIVER RATS' GUIDE TO THE GREEN AND YAMPA RIVERS	$1.00
DINOSAUR RIVER GUIDE	$3.95
EDUCATION AND THE MOUNTAIN CENTRES	$2.00
RATIONALE FOR OUTDOOR ACTIVITY AS EXPERIENTIAL EDUC.	.50
THE ROLE OF EXPERIENCE IN EDUCATION	$1.00
A REPORT ON ALTERNATE SEMESTER 1973-74 (Lincoln-Sudbury Regional High School, Mass.)	$2.00
THE GROUP (Salesmanship Club Camp)	.25
REVIEW OF RESEARCH AND EVALUATION LITERATURE ON OB AND RELATED EDUCATION PROGRAMS	$1.00
TOWARD DEFINING MEASUREABLE OBJECTIVES IN THE AFFECTIVE DOMAIN	$1.00
SENIOR SEMINAR IN EXPERIENTIAL EDUCATION: A CURRICULUM BOOKLET	$2.00
DIRECTORY OF PROGRAMS IN OUTDOOR ADVENTURE ACTIVITIES	$2.00
MAJOR PAPERS PRESENTED AT THE ESTES PARK CONFERENCE	$2.00
THE SLACKENING TIDE:THE THIRTIES & GORDONSTOUN (about Kurt Hahn & OUTWARD BOUND)	$1.00
THE EDUCATIONAL THOUGHT OF KURT HAHN	$1.00
JOHNNY'S NOTEBOOK OF SELECTED WRITINGS	$3.00
PROJECT TO DESIGN AN EVALUATION OF OB	$1.00
EVALUATION OF THE EFFECTS OF OUTWARD BOUND	$1.00
DUKE OF EDINBUROUGH AWARD SCHEME - OVERSEAS AWARD AUTHORIES GUIDE	$1.00
RESOURCE GUIDE TO THE PAWNEE GRASSLANDS	$1.50

A publications list describing the contents of all the above may be obtained from the Colorado OUTWARD BOUND School